PERCEPTIONS AND PREFERENCES OF URBAN FOREST USERS[1]

by Herbert W. Schroeder

Abstract. Urban forest resources provide many important benefits to people who live in cities. This paper reviews research from social science and design disciplines that is intended to guide management of urban forests. Research studies have examined benefits of urban forest vegetation, preferred features and characteristics of urban forest settings, and recreational use of these settings.

Résumé. Les ressources forestières urbaines procurent plusiers bénéfices importants aux gens qui vivent dans les villes. Cet article revise la recherche en sciences sociales et les disciplines de conception qui se proposent pour guider la gestion des forêts urbaines. Les recherches ont examiné les bénéfices de la végétation forestière urbaine, les aspects et caractéristiques préférés de l'aménagement de la végétation et l'utilisation récréationnelle de ces infrastructures.

Trees and related vegetation are a substantial and important component of the urban environment. According to one estimate, 30 percent of the average city in the United States is covered with trees, a proportion larger that the average tree cover for countryside. These forest resources provide many important benefits to urban populations.

In recent years, urban forest managers have been caught between the increasing demand for esthetic and recreational use of urban forest resources and the decreasing budgets for managing those resources. This dilemma has created a need for more efficient ways to manage urban forests for the benefit of urban residents. In response to this need, the social science and design disciplines have undertaken studies of the human perceptual and behavioral aspects of the urban forest (21). This paper reviews perception and preference research intended to guide the management of urban forests, and suggests some future directions that this work could take.

Benefits of urban forest vegetation. When people are asked why they value urban parks, the perceived benefits generally fall into two main categories: "passive" benefits involving esthetic enjoyment and relaxation; and "active" benefits involving sports and social contact (8, 34). Although park programs frequently emphasize active sports, passive aesthetic enjoyment may actually be the greatest benefit of urban forests. This enjoyment can give city residents a sense of relief and escape from urban life (8, 33). Infrequent users of parks and nonusers also obtain benefits by observing parks from the street or through windows, and by just knowing the parks are there to use if needed (10, 11, 34).

Vegetation can have beneficial effects on people's moods and emotional states. For example, in one study nature scenes created higher levels of attentiveness and interest in viewers, while urban scenes tended to increase sadness and fear (31). Studies of physiological responses to the visual environment have shown that scenes with vegetation can produce more relaxed and less stressful states than can highly artificial environments (31, 35). Hospital patients with a view of a wooded scene recovered from surgery more quickly and with fewer complications than patients whose windows looked out onto a brick wall (32).

Preferences and perceptions. Environmental perception studies seek to identify the characteristics and features that enhance the perceived quality of urban forests. In general, natural elements such as trees and water in landscapes are highly preferred over artificial elements (31, 9). Trees and forested areas, water, good maintenance, and peace and quiet were among the most preferred features of urban parks and forests in several studies (19, 22, 37). The most widely preferred kind of park environment seems to be a well-maintained open stand of large trees with evenly mowed grass and water (12).

Features that detract from the attractiveness of a park include manufactured objects (e.g.

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buildings, fences, and parking lots), poor condition of vegetation, urban surroundings adjoining the park, litter, graffiti, crowding, and large, monotonous fields (19, 22). Either too many or too few trees in a park can reduce visual preference (24). Sounds that are incongruous with the character of the setting can also make a forest or park less attractive (1).

Safety. Crime and social conflict are a serious concern in some urban parks and forests. Social conflict includes a wide range of behaviors, from violent crimes to "nonviolent" offenses such as drug use, to behaviors that, although not illegal, may be threatening or offensive to other users (2). Interviews in three parks in Michigan and Minnesota showed that although most users thought the parks were generally safe, more than 40 percent reported experiencing fear or engaging in avoidance behavior at some time (36).

People's perceptions of safety play an important role in their choices of whether and how to use urban forest recreation sites. Dense vegetation, graffiti, and litter decrease the perceived safety of a site; long view distances, open grassy areas, and water create a perception of high safety (22). Undeveloped, heavily forested environments are perceived as the most scenically attractive but the least safe sites; and open athletic fields are perceived as least scenic but most safe. Sites with trees that provide substantial overhead canopy but little foliage at ground level may be perceived as both safe and scenically attractive.

Variations in perception and preference. Not everyone likes the same kind of places. There are variations in urbanites' perceptions of urban forest settings, especially with respect to the degree of naturalness versus development. For example, Schroeder and Anderson (22) found that most of the participants in their research thought that natural-appearing parks with dense vegetation were the most attractive, but a few people preferred highly developed, "manicured" parks. Also, most participants thought that heavily wooded parks were the most dangerous, but some felt that densely wooded parks were among the most safe.

Variations in preference appear to be related to residential and ethnic background, age, sex, education, and activity preference (14, 26).

Blacks and people with urban residential backgrounds tend to be less oriented toward nature and less knowledgeable about environmental concerns than white people with suburban or rural backgrounds (13). Interviews with low- and moderate-income blacks suggest, however, that blacks differ from whites not so much in a lack of interest in enjoying the outdoors, as in the kind of outdoor environments they enjoy. Blacks in inner-city Detroit prefer orderly settings with built features and well-maintained vegetation over more natural and densely wooded areas, a preference that may be associated with fear of physical danger (29).

Recreational use of urban forests. People's preferences for urban forest environments are expressed in their choices of which sites to visit and how to use those sites. Knowledge of how urban forest sites are used is essential for deciding how the sites should be managed and maintained. A detailed observational study of two northeastern urban parks revealed not only that the parks are heavily used, but also that they are used at all times of the day and night and in all kinds of weather. The parks are used by a broad cross section of the urban populace, usually engaging in simple activities such as walking, conversing, and observing their surroundings (16).

The numbers of users entering Chicago-area forest preserves follow a stable and predictable pattern over the day, week, and year. The amount of use for a particular site can be accurately predicted knowing the month, the day of the week, and the weather (5).

People's choices of which urban forest sites to visit are strongly influenced by travel distance to the sites. For example, 37 percent of Chicago-area forest preserve visitors travel 2 miles or less from home or work to the forest, and about half report a travel time of 10 minutes or less (37). Distance has consistently appeared as a dominant factor in models of recreation site choice (18, 26, 14), but this relationship is complicated by urbanites' lack of information about many of the parks available to them (27).

Applications of research. Research on urban forests is useful only to the extent that it can contribute to the planning and management of vegetation in cities. In this section, I will give some ex-

amples of how perception and preference research has been or could be applied to planning and managing urban forests.

Surveys can provide information on how the public perceives the importance of management objectives and the performance of the manager in meeting those objectives (17). Surveys have been used to document the importance of urban trees to residents, to identify opinions about where trees should be located, what kinds of trees are preferred, and what services should be provided, and to reveal sources of dissatisfaction with tree management programs (6, 23). Surveys have also been used to assess the success of park design after the park is completed (10, 11).

A survey of public motives and perceptions provided a basis for publicity efforts to correct misinformation and lack of information in the public's image of a park (7). Research has also identified weaknesses in existing planning and zoning mechanisms (28, 4), and has measured the benefits of preserving vegetation in planning for urbanization (3).

Visual preference models have been linked with computer data bases for urban street trees. Inventories that record the location, size, and species of street trees can provide data for predicting the visual quality of urban streets (15). A "scenic beauty equation" can easily be built into a street-tree data base to help managers locate streets in need of aesthetic improvement and predict the visual impact of changes in street tree populations.

Directions for Future Research

Continuing research on perceptions and preferences for urban forests should emphasize those topics and issues that will most increase the ability of urban forest managers to use vegetation to improve urban living. There are several useful areas of future research and application.

We need a better understanding of the influence of vegetation on the quality and experience of everyday life in cities. Research should study people's preferences and experiences in their real-world daily activities, where even brief and casual encounters with vegetation may have significant impacts on the quality of life.

In-depth interviews could reveal the subjective meaning of trees and their associations to individuals' significant life events. The quality of life is partly a function of the emotional attachments that people form to specific places and to special features of their surroundings. Individual trees may be associated with memories of significant places and events and may thus become the objects of strong feelings (30). For some people, trees and nature are symbolic links to deeply held spiritual values (20).

At the same time, quantitative research can yield better measures of benefits, including the physiological and health effects of vegetation. Research on the relation of urban vegetation to community health and well-being would greatly strengthen the arguments for spending public funds to manage urban trees.

The growing use of microcomputers in management and research offers many opportunities for making research results usable by and accessible to managers. Interactive programs that predict levels of use at urban forest preserves (5) and the distribution of choices over sets of parks (25) have been effective in conveying research results to managers who are unfamiliar with the technical details of statistical models. Researchers should be alert for opportunities to tie their research into existing or proposed computerized management and planning systems for urban forests.

Researchers in urban forestry should provide managers not only with information but also with methods for obtaining their own information. Urban resources and populations are so diverse and rapidly changing that the research results from one situation may often not apply in other situations. Managers should be involved in research on their own sites, so that they can answer specific questions and evaluate the consequences of alternative management actions. The best future prospects for useful research on perceptions and preferences of urban forest users will be found in a close partnership between researchers and managers that identifies, studies, and ultimately solves problems of urban forest management.

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